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ABSTRACT

Papers on university and other research libraries, presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "The Impact of Technology on Users of Academic and Research Libraries," in which C. Lee Jones (United States) focuses on the impact of technical advances in computing and telecommunication technologies; (2) "The Introduction of Electronic Equipment in Libraries: Policies versus Attitudes in the Swedish Setting," in which Bjorn B. Tell (Sweden) describes staff attitudes, management practices, and Swedish government action related to the introduction of automation in cataloging, information retrieval, and other library activities (with an abstract of the paper in French); (3) "Impact of Automation on Funding Patterns in Academic Libraries: A Case Study," in which Peter Spyers-Duran (United States) describes funding and automation at California State University and asserts that the added expenditures of library automation will probably result in a reduction of positions; (4) "The Place of University Libraries in the Field of Information Supply," in which Klaus-Dieter Lehmann (West Germany) outlines possibilities for multi-faceted involvement by university libraries in computerized information and document supply services; and (5) "University Libraries and the Higher Studies: Suggestions for Improving Services," in which Abubaker M. El-Hush (Libya) reviews the development of university libraries in the Islamic and European traditions and the role and services of university libraries in Libya, with suggestions for improvement. (ESR)

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The Impact of Technology on Users of
Academic and Research Libraries

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THE IMPACT OF TECHNOLOGY ON USERS OF
ACADEMIC AND RESEARCH LIBRARIES

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From their inception libraries, including the earliest collections of manuscript materials, have adopted appropriate technological innovations as those technologies matured. (This does not imply that all technological innovations tried in libraries are appropriate, but some have been and are.) The key word is "matured." There are many libraries, smaller academic and public as well as some large research libraries, that resist employing technologies until they have been proven in other similar operational settings. Some libraries are more aggressive in technological adoption than others, but nearly all have been compelled over time to apply technology to their functional operations. The early book catalogs became card catalogs

within the last century as card stock, originally a technical innovation, became widely available. It would be interesting to understand how various inks must have been perceived as they were developed and put to use in libraries. Certainly the development of the typewriter had an impact on libraries and their users. Let us, however, for purposes of this paper, focus on those technical advances that have occurred and will continue to occur as a result of the maturing of computing and telecommunication technologies. Clearly, optical and videodisk (digital and analog) technologies are developing rapidly with prospects for major impacts on libraries and library users, and in fact, can be classified as a hybrid of computing and telecommunication technologies if one allows a very broad definition of those terms. Though many libraries are exploring how the optical disk may be used, some prominent leaders in this area include the U. S. National Library of Medicine and the Library of Congress. However, because of the youthful nature of optical/videodisk technologies and their sparse use to date in public service departments of libraries, they will not be covered here.

The history of technology in libraries has been adequately documented by a series of competent authors. It has been a history marked by cautious adoption often accompanied by expectations that exceed actual performance, improvement or cost reductions. In fact, cost reductions expected to accrue from the application of computing to library problems have been too often illusory and the actual effects, when they have been positive, have more often

been improved or expanded services. It is also safe to observe that, until recently, technology has been more influential on the internal operations of libraries than on public service operations.

Most recent adoptions of technology in libraries have been focused upon immediate operational needs to process records describing or accounting for library materials. An exception is the hesitant though persistent introduction of access to computer databases external to the library by library reference departments, usually databases of citations to journal literature, all of which began about fifteen years ago. Only in the last three years or so have these services been particularly pervasive in academic libraries and so have led to certain service expectations on the part of library users exposed to them. The most dramatic technological innovation that academic (and other) libraries have begun to embrace that has very real impacts on library users is the creation of online catalog replacements of the card catalog.

The online catalog takes advantage of machine-readable bibliographic records that libraries have been creating in their technical service operations. The concept of sharing the work of creating bibliographic descriptions of library materials, a concept pioneered by the Library of Congress in the early part of the century, led slowly, yet inexorably, to the shared cataloging services now in place for the sharing of machine-readable

representations of library materials among many libraries. These service agencies, often referred to as utilities in the US and represented by organizations like OCLC Online Computer Library Center, UTLAS (University of Toronto Library Automated System) and the Research Libraries Group's RLIN (Research Library Information Network), have made it possible for libraries, regardless of size, to not only share the work of others but to develop databases representative of their own collections.

Those libraries that pioneered the use of computer technology, especially those with relatively small collections or with collections that were only then being developed, often found themselves with all, or a substantial portion of their bibliographic records in machine-readable form. During these early years of library computerization, machine-readable records were the products of shared bibliographic work as well as raw material for generating catalog cards. Libraries were still left with the onerous and difficult task of maintaining their card catalogs, filing, editing, etc. Some libraries with records in machine-readable form began to experiment with computer-output-microform (COM) as a supplement to or replacement for the card catalog. Often this occurred in public libraries, but some smaller academic libraries also explored COM as a replacement for the card catalog. One of the earliest manifestations of a COM catalog was in the Tarrant County (Texas) Junior College system in the late 1960's. Some libraries continue to find COM a cost-effective alternative to online catalogs at least for the time being

including some very large libraries like the National Library of Medicine. In the COM catalog environment, users have had to change from flipping through cards in drawers to scanning "pages" of bibliographic citations. Users have often found scanning pages of records to be more efficient than flipping through cards in drawers one record at a time.

During the early efforts to apply computing to library problems, it was fashionable among large academic libraries to attempt to create local integrated computing systems to support work in cataloging, serials control, circulation and inventory control, acquisitions, fund accounting, and in certain rare cases, the use of the resulting database for reference use. Campus support was strong for such efforts, especially when the computer center needed to justify the acquisition of a larger more powerful computer. The visionaries predicted that library users were going to be using terminals to gain access to information, but there were few willing to plan for that eventuality in the early 1970's, principally because of the then high costs of online access and terminals.

Let us note, for the decade of the seventies, the extent of technology adoptions by academic libraries that might have been expected to effect library users. First, materials were being processed more rapidly into collections because of the rapid spread of shared cataloging services. Similarly, cards were being integrated into card catalogs at a more rapid pace

because of certain arrangements made possible by the computer technology that drove the card printers (arranging cards into filing order prior to delivery to the library, etc.). Library materials were being ordered more rapidly because of computer-based acquisition systems (for the most part vendor-based book order systems). Circulation systems designed to help control inventory and charging activity were fairly common. Nearly all academic reference departments were providing some sort of database search service by the end of the decade. Most of these database search services were provided by libraries acting as brokers for companies providing online access to a rapidly growing inventory of databases. Some few academic libraries, and many more public libraries, had gone to COM catalogs and others to printed book catalogs.

What impact did these fairly common adoptions of such manifestations of computer/telecommunication technologies have on the users of academic libraries? Aside from the access to remote, online database services, very little. The library had not really changed as far as the way patrons gained access to materials. There were terminals behind the circulation desk and more information was available about where certain materials were (or were expected to be), but for users, it was pretty much circulation business as usual. The fact that books were available more promptly and card records available faster were transparent changes for the user. The user's behavior was not noticeably modified nor was it required to be. Automated circulation systems may have caught up with delinquent borrowers more readily, but even

this was usually a transparent change. About the only time one of these systems had a dramatic effect on users was when it did not work, especially if the system in question was a circulation system. The tenures of some very good librarians were dramatically compromised by overly aggressive introductions of circulation systems that failed to work as expected. Other computer-based systems failing to perform as expected were less likely to lead to management changes. But, where the convenience and service of the patron were at stake, it paid to be sure that a new system would work as anticipated. Many of the circulation system failures were traced to the fact that the systems were designed for relatively small libraries and failed, or experienced serious operating problems, when introduced into larger library environments.

In all of this, there was a glimmer of the sort of change that library users could expect in the future. The database access services provided by reference departments began to demonstrate the power of the computer to manipulate data and to retrieve appropriately tagged and organized information. Library users may have wondered why information retrieval techniques used on remote databases by the reference department could not be exploited in other areas of the library such as the card catalog. Once a library user had been exposed to the power of a computer search, only the cost, if passed along, really inhibited continued and expanded use of such services. The difference here was that the behavior of the library user was

being modified. A user had to go through the reference librarian as mediator to gain access to remote computer databases. (It is true that the National Library of Medicine tried very early to encourage individual practitioners to use the MEDLARS system themselves, but, because the system changed so rapidly in both content and search capability and strategy, it did not prove easy enough to use to retain large numbers of practitioner users.) Not only did the user change the way he or she gained access to information from computer databases, but the information obtained was independent of the library in which the service was performed. The results of searches often referred to documents not in the local collection. So, though more information was provided, actual access to the documents referred to was not enhanced and, in fact required other user actions. They had to go to other collections or they had to request documents from remote sites more frequently than they might have before being exposed to the information from a database search. The impact of this additional information has been hard to assess. Has more information produced better scholarship? Since we do not have good baseline data, it is unlikely that we will gain reliable evidence one way or another. We can, however, confidently say that the introduction of database searching has changed the behavior of those users who have taken advantage of the service. There is data to suggest that scholars who have used database searches tend to use more citations in their written work.

It is still the case that only a small but growing fraction of the users of academic libraries routinely use these remote computer database search services. Only that population has been affected dramatically. The advent and rapid spread of the use of online catalogs as supplements and, in time, replacements for card catalogs will affect a much larger portion of those using our academic and research libraries. Only those who manage to use our libraries without guidance from the bibliographic record of the collection will remain untouched by the adoption of this technology as the basic access tool to the library's own collection.

In 1980 the Council on Library Resources (CLR) funded an effort to assess the state-of-the-art of online catalogs in the US and Canada. Fewer than twenty could be identified as fully operational and routinely available to library users. Many institutions were planning, others were testing models or prototypes, but few were actively providing online catalog service to their users. As this paper is being prepared (April 1983), it is likely that there are more than two hundred libraries in the US and Canada that now provide online catalog access to at least a portion of their collections. The move to this very powerful tool is rapid and pervasive; from the largest institutions to the smallest, efforts are being made to evaluate the prospects for implementing online catalogs where they do not now exist. The impact on users is very powerful and as suggested above, affects a far larger proportion of a

library's patron population than any other technological advance in libraries in the last several decades.

Having received the completed state-of-the art paper, CLR funded a coordinated study performed by five separate, but cooperating organizations to determine, in part, the impact of online catalogs on library users. The techniques used to gather data included the use of questionnaires (one for users of online catalogs and one for non-users), group interviews of users and library staff, and transaction logs that recorded actual search strategies and results. Data were collected at 29 libraries, on 15 different online catalogs. Unfortunately, the only Canadian library scheduled to participate had to withdraw from the project. Consequently, all results reported below are from 15 US research libraries that are members of the Association of Research Libraries. All kinds of libraries were involved in the study, but the information provided below represents only data collected in research libraries.

All data and inferences should be understood in context and one of the more important contextual elements is that most of these online catalogs were new to the libraries in which they were located. Only the Library of Congress and the Ohio State and Syracuse University libraries had very much experience with online catalogs at the time this data was collected. With this caveat in mind, what did the results of the study show about the impact of online

catalogs on users?

ATTITUDES TOWARD THE ONLINE CATALOG

1. Over 80% of users had a favorable attitude toward online catalogs.
2. Over 90% felt that the online catalog was at least as good as the card catalog.

RESULTS OF ONLINE CATALOG SEARCH

3. Over 75% of users were satisfied with online catalog search results.
4. Over 80% of users found some of (or more than) what they were looking for.
5. Nearly half discovered unexpected and useful results.
6. Over 40% of uses were for course related work.
7. Nearly half of users were seeking specific information.

INTRODUCTION TO AND USE OF THE ONLINE CATALOG

8. Two-thirds of users discovered the online catalog by seeing a terminal in the library.

9. Over 70% learned to use the online catalog from printed or terminal screen instructions or in some other self-learning way.
10. Nearly 60% used printed or terminal screen aids during the search.

PROBLEMS AND DESIRES FOR THE ONLINE CATALOG

11. Subject searches gave users great difficulty.
12. The height of the terminal keyboard was identified as a problem by over 90% of users.
13. Users want more terminals available in more places, including locations outside the library.
14. Users want all library materials to be included in the database.

CHARACTERISTICS OF USERS OF ONLINE CATALOGS

15. Most online catalog users are frequent visitors to the library.
16. Nearly 60% of online catalog users use the tool on almost every visit to the library; slightly over 30% use the card catalog on nearly every visit.
17. Only a third of the online catalog users routinely use other

computer systems.

18. 58% of users are undergraduates.
19. 30% of users are graduate students.
20. Nearly half of users come from arts, humanities and social sciences.
21. 70% of users are between 20 and 34 years of age.
22. 60% of users are male.

It is helpful to remember that these data reflect conditions at 15 major research libraries during a three month period in mid-1982. Many of the catalogs that were a part of this study were new to their institutions and all were in a state of development or change. It is likely that the online catalogs now in place will continue to be modified as more experience is acquired and a clearer understanding of what users require is achieved.

Has the online catalog altered library user behavior in the academic or research library? Without a doubt. Even if no other behavioral change has taken place, users of the online catalog have modified their expectations regarding what libraries can, and should provide to users. But, behavioral changes have taken place as well. In institutions with online catalogs, library users find that they have to learn to use computer terminals, that they have to learn search strategies and they have to learn how to manage information available in a computer database. At the same time, their

expectations for other libraries change. Library users who move from one library to another are likely to expect all libraries to have online catalogs.

As more and more libraries implement online catalog systems and users migrate from one to another library, they are going to experience the non-standard nature of present online catalogs. They will find that terminals are not alike; screen displays are not identical; worse, commands used to search the database are not alike though they may be similar; and the search power or capability of online catalogs is different from one to another, often requiring different search strategies in order to retrieve similar, rarely identical, information. Card catalogs, though full of the effects of different and changing filing rules, different and changing cataloging codes and interpretations, have striking similarities from one library to another. They are most often made of wood and the cards are arranged more or less alphabetically or by classification and card size is fairly standard. These basic familiarities help users feel that they are in control of the tool though they may have just as much trouble finding useful information in different card catalogs as they are likely to have difficulty in using different online catalogs. And yet, online catalogs are still such new technological manifestations that it does not seem appropriate to push for standards just yet. At most, we might contemplate a set of guides that would encourage similar commands and screens and even features of a basic online catalog. Until we do something along these lines, we will run the risk of

real confusion among our users as they move from one online catalog to another. A current set of meetings sponsored by the Council on Library Resources are aimed at raising the level of awareness of library managers and system designers to these issues.

This paper has focused on some of the effects that the adoption by libraries of certain technologies has on library users in the academic or research environment. There is a case to be made that users in their own right have considerable influence on the adoption of technology by libraries. The rapid spread of computers (especially microcomputers) among the population has the effect of raising the level of awareness of library users of what can be done with computing and telecommunications. EURONET, TYMNET, TELENET, iNET all provide home computer enthusiasts with access paths to remote databases and to other home computer buffs. It is only a small step to begin to understand how libraries ought to be using the technology for resource sharing and access to remote databases. Librarians, academicians, and students are all being exposed to the power and present potential of computing and telecommunications, one author even combining the two semantically into "communications." The spread of communication technology throughout society provides the prospect for individuals to go direct to the source of databases - bibliographic and textual - without the need to go through the library or other intermediary.

On academic campuses, an increasing number of students have been appearing each fall with their own microcomputers hoping to gain access to the large mainframe computers on campus and fully expecting to be able to search the library database from their dormitory rooms. This has forced academic administrations to develop logical campus networks that will handle this demand, a demand that few campuses anticipated early enough. There are now more and more schools planning to issue (or require that it be bought) a given type of computer to entering freshmen (the common computer simplifies networking requirements) and other institutions are planning to require computer literacy from all graduates regardless of academic specialty. Much of this is being driven by forces outside the university, forces led by students with very high information processing expectations. These expectations have their roots in the Commodore PETS, Apples, TRS 80s, Sinclairs and other relatively powerful but small and portable computers. As the cost of producing and acquiring these tools declines they will of course become even more pervasive and in the end, ever more pressure will be exerted on academic and research libraries (actually all libraries) to make maximum use of computing technology to serve the information needs of the public.

The impacts of technology both emanate from libraries and are exerted upon them. It is our role as library professionals to see that the resulting use of computers and telecommunications, as well as any other

appropriate technologies, contribute in cost-effective ways to the needs of scholarship and research.

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The Introduction of Electronic Equipment in Libraries -
Policies versus Attitudes in the Swedish Setting

by

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THE INTRODUCTION OF ELECTRONIC EQUIPMENT IN LIBRARIES -
Policies versus Attitudes in the Swedish Setting

Invited paper by Björn V. Tell
Lund University, Sweden

At the 1982 Montreal Meeting with the Standing Committee of University Libraries and other General Research Libraries it was agreed that there should be a two-part session in Munich covering the 'Impact of Computer Technology on Staffing Patterns and Users', and that this theme would be treated from a management viewpoint and would include a review of the state of the art. One of these presentations should cover the user aspects, and the second paper should deal with staffing aspects of the same theme. As most of the problems have been encountered already in a small country such as Sweden, the author was selected. Afterwards the chairman has expressed the view that the paper also would look to wider implications and developments elsewhere. The reader will now have the opportunity to see how these requirements put on the author have been fulfilled.

A few words about a management doctrine

Head librarians are usually appointed to their positions and are vested with authority to compell obedience from their subordinates. Many of those who are working in bigger libraries have little or nothing to say about their jobs, and that alienates them from the aim of the library as a service organisation. To introduce a new technology in a library will have effects on the work environment, and it would be 'demeaning to the profession of librarianship to imply that librarians should be merely 'operators' at the interface of user and systems' (Wenger 82).

Nobody masters the job better than the one who carries it out, and librarians have a much more vital role to play, and in treating staff attitudes towards automation we may acknowledge the guidance provided by management theories. As early as back

in the 30'ies the management doctrine talked about the need to have 'consent from below'(Barnard 38). The organisation should be viewed as a social system. Participative leadership should encourage the employees to express their ideas and opinions about their work.

Already, there are many examples which show that the introduction of the computer technology in libraries will improve the service from various aspects. If a librarian vigorously is going in for automation, how will he then avoid some negative effects among the staff? According to the management doctrine he has to look closer upon the individual's identification with the library organisation based upon a strong belief in its codes, as opposed to compliance imposed from without.

The uncertainty factor

In the Swedish library sector there are over 500 terminals, and a score of minicomputers operating. Still many staff members have an unclear idea of the computer. The introduction of automated routines entails risks of being interpreted as a threat to the job. So, even if automation offers new opportunities, it also affects the working conditions and puts demands on readjustment and renewal. Throughout the life we learn that changes are for the good and bad. As an individual you feel the need to defend three important issues, namely your self-confidence, job security and self-esteem.

A prime example of the risks is the case when we tried to introduce indexation with the Subject-Access-Project-methodology using free text as developed at the Syracuse University. A team of well-trained cataloguers who after years of experience mastered the MARC-like input routines to the Swedish on-line system for cataloguing - LIBRIS - was briefed about how to proceed. The rules seemed simple; Choose from the content list all headings referring to at least five pages, or from the index all terms which refer to at least five entry points in the book. Augment the headings if necessary from the text. (Atherton 78, Tell 81)

The librarian and the project leader gave information about the project. Guidelines in Swedish were distributed. However, the result was that the cataloguers disliked the method as not being 'professional' in their views. The rules were too loosely formulated. Consequently they had no professional curiosity to test the new idea.

and they would not like to wait until the practical results of their work came out of the computer. After a few days of trials these negative attitudes led to their separation from the project which was handed over to a mere clerical staff who succeeded to do the job.

The cataloguers knew their job and in their own and the other staff's eyes they enjoyed an esteem for bibliographical certitude. It had taken them some years to master the AACR and MARC rules to input from terminals. They recognized that their earlier experience of manual cataloguing had been transferred from the typewriter to the terminal keyboard, and they could live with that change, but they could not master such a more fundamental change in method as the free-text indexing implied. Instead their self-confidence got a shock.

As the cataloguers knew each others reasonably well, they had found their roles to play in the library. They knew also how their colleagues would react in different situations. That gave them a feeling of security in the job. What role they would have to play when the new technique was introduced, was impossible to imagine.

Self-esteem is something we have learnt by looking at how others react to our behaviour. In other words, it is a reflection of how we believe others form their opinions about us. If a staff member believes that the introduction of a new technique causes him to lose that important source of esteem, it is understandable that he feels being under threat. So, what the uncertainty factor really demands is an exploration of a varied set of approaches.

Co-determination in practice

This way of looking at things suggests to us to follow a path by which uncertainties can be reduced, and to turn our attention to the institutional structure which recently has developed. In the past decades democratisation of work processes has been favoured in Sweden in order to utilize more fully the talents and abilities of people on the job. In 1975 the Co-determination Act introduced such influence, particularly in the public sector. Thus, even the head librarians are now liable to take up negotiations with the representatives of the staff organisations (trade unions) in all cases which are of importance to the staff. Such cases are rationalization proposals and development of new processes which aim to facilitate make changes in work methods, the introduction

of technical means, or the organisation of work by new procedures. Even activities which are meant to establish a preparedness for change in the work process fall under the formal rules of the Act.

The parties on the labour market have agreed that information is very important, so important that it has been codified in the Act. The assumption is that all employees shall be given so much information that they can form an opinion about the matters concerning their work and the job environment. Already the drafting of a project to introduce computerized means triggers off the head librarian's duty to inform his staff about the aim with regard to procedures, time schedules, when and how information to different parties should be disseminated, if consultants should be used, and what resources are going to be available.

Before a plan can be implemented, negotiations with the staff are needed. Normally, no action should be taken before information to and discussions with the staff have taken place. In order to facilitate the proposed change, training needs have also to be considered. During the implementation phase new negotiations are required.

The Act is an expression of the thinking that the head librarian no longer takes the decisions alone. Instead, he must recognize that employees have talents and abilities other than what they can show on their daily job, that they are capable of thinking about new ideas and to initiate new procedures and ways of doing things differently. Thus, a practice of participative leadership is introduced. The decision making is shared between the management and the staff by means of negotiations, meetings and agreements.

The most difficult and important part in the discussions is to state the consequences of computerization, its hazards and opportunities. In the above case study, the staff seemed not to have grasped that the information was important to them, and therefore, it passed by unnoticed. Most important for those who are exposed to change is that they get to know as soon as possible what their own situation will be like in the future. It has to be pointed out how their daily work could offer opportunities of work incentives, variation, independency, responsibility and work enlargement according to their abilities.

Hasten slowly, but keep the time schedules

Staff members who are not adapted to meet the introduction of computerized means need conditioning. Considerable time has to be devoted to meetings, demonstrations and training sessions in order to change tradition-bound attitudes. As soon as you as head librarian in principle are determined to introduce an automated procedure, the staff needs to take part in and influence the practical course of action. The chance is great that they get the feeling of an opportunity for individual development. That is shown by the following cases.

To understand the significance of the computerized technique is not a matter of understanding the technical wonder the computer represents with all its buttons and twinkling lights, even if it helps. Instead, it is to be aware of the challenge for a better job environment that the computer creates. Too detailed technical information may cause blockage in the minds of those who do not have technical interest or knowledge.

The early computerization in Swedish libraries took place in two special libraries belonging to big research organisations. The project leaders could easily come to terms with their staff. The intellectual climate favoured research and experimentation. The available computer power became a challenge to be used for library purposes, too. Close contacts with overseas counterparts enhanced such a development. There was, for instance, an exchange of ideas between the Swedish nuclear establishment and the Oak Ridge laboratories as well as with Saclay and Harwell also in the information field. Already the introduction of a type-train for upper and lower case letters for the computer print-outs of the acquisitions list reinforced the staff in the belief about progress. (Tell 68).

In the university library sphere the environment was different, and we can follow two development lines. One regards the introduction of information retrieval procedures, and the other the computerization of the union catalogue into an integrated on-line system for bibliographic control. In the first case the government made an early decision about an information policy to enhance medical information by the use of computers.

The Karolinska Institutet obtained research funds to set up a specialized unit outside its library organisation to start up the Medlars service, because the senior library staff was not in

high esteem at that point in time. New staff was hired who had knowledge about punched-card machines, but little experience in library operations. Being an independent unit it could afford to build up a competence by sending staff to the National Library of Medicine, Bethesda, USA. Those who came back had fresh and innovative ideas. Without much ado they emulated the Honywell tapes from NLM to an IBM computer in Stockholm. Morale was built up under the leadership of professor Sune Bergström, the Nobel laureate in 1982, and a Medlars service could start in 1965. The reaction from the traditional librarians was in the beginning that the new service, pouring out endless printouts, gave them nothing but extra work, particularly because the number of source journals in the library was insufficient. It took over a decade to integrate the independent Medical Information Center into the medical library on the organigram, but the implication is still that the library staff feels uncertain about their colleagues on the retrieval side.

As a follow-up policy the government also stated its intention to use computerized information in the field of technology. The Royal Institute of Technology - KTH - was chosen for that job. All development work took place inside the library in contrast to the Karolinska. Fortunately enough, the salary level of assistant librarians had then risen. That seemed to offer opportunities for fresh electronic engineers, so the library could start to hire graduates in engineering. Their experience in computer work during their studies was felt as an asset. For them the start of a computerized service was the challenge that they wanted, because it opened new opportunities for them in a traditional library setting. When the first SDI-service started from INSPEC, and other tape services there was no matter of anxiety for the future, and the leader of the project did not bother to dissipate energy on negative attitudes. The extra budget research funds gave also more freedom for promotion from within by seniority.

The impact of international recognition

The achievements in these two places were recognized world-wide as examples of technical advances which must be made to increase the reliability and efficiency of library services. In the Synopsis of the UNISIST feasibility study (1979 p. 36) it says: "The type of SDI services now provided by the Kungliga Tekniska Högskolans Bibliotek and the Karolinska Institutet in Sweden ... may well augur the shape

of things to come". However, in order not to obscure the picture for developing countries it is important to notice, that in both cases the computerization for information retrieval from magnetic tapes took place in what can be called a free sector, i.e. there was no reassignment of traditional library staff for new jobs, instead, recruitment of new personnel took place. Not until later on, they were integrated into the tradition-bound library staff.

In both cases the capabilities of the leaders reinforced the individual productivity of each member of the project team and the international recognition spurred the staff to further endeavours when on-line searching was introduced. It goes without saying that both projects competed for research funds, and had to show results which pleased the grantgiving agencies. That competition clearly influenced the behaviour of the two groups.

The Karolinska made its best to emulate and implement the successive software packages that came with Medlars. The Royal Institute developed its own software and a number of effective retrieval programmes resulted, such as ABACUS, VIRA and 3RIP. Eventually that led to reconciliation between the two groups who now run their SDI on the same computer by the same software. From the beginning the groups were under time pressure, because both wanted to present an effective SDI-service concurrently, and that had strong effect upon the group productivity.

Hitherto, we have dealt with the effects of computerization upon the staff. The effects upon the library users should also be taken into account. The user plays the role of consumer, and as such a one he has many options to choose among. That role is different from the employee who usually does not have such alternatives, because automated methods are decided upon by the management. The SDI-service was an innovation that was received by the users with mixed feelings. Among researchers in fields such as medicine, sciences and technology there was immediate response, and those fields seem to be the most likely place to find information users who will appreciate an improvement. The service was given out free on trial basis, and within short, the number of profiles ran up over a thousand. As a sort of compensation, the user had to evaluate the output to give a sounding of the user satisfaction. On the same time that spurred the staff to help to revise too loosely formulated interest profiles.

The SDI-service was given out nation-wide. That caused a stir among many special librarians who felt that part of their function was under threat. Many placed a number of profiles just to prove to their own users that the computerized service merely caused a lot of noise. They could do better by manual searches. The day they were charged for the SDI-profiles, these phony profiles dropped off. Also, many special librarians did not want to recognize requests from users based upon references received by the SDI, instead, they referred them to the libraries of the Karolinska and the Royal Institute, a measure that was not well taken by the users.

In retrospect, it should be noticed that the introduction of SDI took longer time than expected until a reasonable number of users became convinced that their work could be facilitated by placing SDI-profiles and paying for them, as library service for long had been free. The introduction of the on-line retrieval services was more rapid. That may be the result of both the demonstration effect that was more immediate than for SDI, and the conditioning made by the SDI, whereby the users were accustomed to the way the computerized searches operated by keywords, thesaurii and Boolean algebra. The intermediaries in the library got a job enrichment and could spend more time with the problems posed by the users, as an entirely new type of relationship developed between the two.

Automation in libraries - an on-going process

The government policy took also account of the introduction of a computerized system for research libraries from a national viewpoint. However, the design and development of automated systems is the duty of the national O&M-office, SAFAD (The Swedish Agency for Administrative Development). Therefore, in order to involve the librarians, SAFAD entered into collaboration with the Swedish Council of Research Libraries that only came to play an advisory role in the development of the LIBRARY Information System - LIBRIS. Financially and operationally the whole project was in the hands of SAFAD, and many librarians felt themselves overrun by the bureaucracy that SAFAD represented, (Sandels 75).

The intention was to develop an overall on-line system in a network comprising all kinds of library routines, (Sanner 82). During the long period of development the initiatives by the librarians concentrated mainly upon saving as much as possible of the Swedish

cataloguing rules during a period of transition into the AACR and MARC. After more than a decade the system is currently used as a source for precatalogued records for many of the libraries, (Noerr 82).

The shared cataloguing system on-line has had a great effect on the operation of the libraries which have had to conform to common rules. That means that they have had to change their procedures and also undertake new tasks. At present LIBRIS is used for cataloguing and as a location tool nation-wide, two functions that are important but only part of the total library operations to be automated, e.g. interlibrary loans, periodicals check-in, acquisitions, statistics, etc. Still, there is no information retrieval function in LIBRIS which currently holds around 800 000 records. A book is retrieved by author, title or ISBN. No subject searches can be made, and no free-text searches from titles.

The SAFAD people who had the responsibility to run the LIBRIS from the very beginning and through three generations of software development built their confidence of success on earlier office automation systems within the government, particularly in the payroll area. The guiding principle was that the more extensive use of computers should be the dedicated task of the SAFAD, and centralized solutions should be aimed at. Librarians should only come up with specifications, because in the library field the SAFAD people were ignorants.

The decision to introduce LIBRIS was received with mixed feelings by the librarians. On one hand many were afraid that the delicate job of bibliographic description should be taken over by non-specialists when the system was fully automated. On the other they were thrilled to be charged with the task, for instance, to specify the needed character set for the terminal keyboards, or to design all the tags, indicators and identifiers they could dream up in order to reflect all the intricacies of descriptive cataloguing.

The SAFAD specialists became trapped in their efforts to sort out all user requests, and after some years of operation, when many development proposals still were unanswered, they wished that they never had entered the field. Over the long period of growth

SAFAD arranged a number of meetings and demonstrations among librarians. A great number of working groups were formed in order to channel the user demands. No automated system in Sweden has involved so many people during its development. It is fair to say that the information about LIBRIS was abundant, and library staff could follow how their expectations about an automated system came through or failed depending upon the will of the SAFAD. That developed a new set of relationships between the librarians of the earlier self-confined university libraries. Those charged with LIBRIS developed new attitudes, competencies and skills as they shared a sense of importance in the network which became a forum for sharing problems and ideas.

After implementation of the third generation of LIBRIS the whole operation was handed over by SAFAD to the Royal Library which had to grant the processing by charging its users for the service. Development work had to be decided upon and funded by another agency, DFI (The Swedish Delegation for Scientific and Technical Information). Thus, the LIBRIS secretariat in the Royal Library came in a most peculiar situation from the two aspects of management and funding, because it is responsible to two masters, even if it belongs organisationally to one of them. That is an awkward situation that creates tensions within and around LIBRIS and hampers its operations, (Noerr 82). The influence from the research libraries has been insufficient, and many librarians have noticed that the priorities set by the LIBRIS secretariat may not be those of the majority of the users.

It is natural that the bigger users who have to pay each more than half a million SEK for the annual LIBRIS service, now are considering acquiring local systems to break the LIBRIS dominance, to be bought from the vendors of minicomputers, or implemented upon their own university computers. In the former case a few librarians have come together to exchange software they have constructed for local minis for automating various library functions, such as periodicals check-in, acquisition and circulation systems, and accountancy. Automation has to be seen as an on-going process where we still are in the very beginning. Older staff have difficulties with the new technology, even if they feel that they will master the LIBRIS. The younger staff would like to see more developments.

A symbiosis will eventually arrive, namely that the LIBRIS will

allow for distributed processing where users would be able to connect their local systems to the central resource. Such a solution would be an incentive for them to develop their own local systems within an overall framework and set of standards. The central bureaucracy may have to realize that there exists a know-how and expertise among the users that goes beyond LIBRIS and its limited capability of program differentiation.

Such realization is always painful. When the LIBRIS introduced the intelligent terminals, it was found in some libraries that these could be programmed for in-house routines as well, so local operations could be performed off-line, and we could notice that the librarians now became leaders of the automation development. Visiting professors and guest researchers have also contributed to embark on difficult automation tasks. If there has been no proper division of tasks, that has caused feelings of unrest and even hostility among the permanent staff.

Outlook on the international scene

There is no need for any crystal ball to visualize that terminals will dominate the future libraries. The author has tried to introduce on-line terminal searches in a few developing countries. We have noted that the senior staff in the LDC libraries are much interested in applications of terminals and computers, more than department heads or members of the university board. Therefore, the decision makers have to be persuaded more than the library staff. In many cases the instructors of graduate studies do not appreciate the written word in books or journals as a primary source of information. So, they do not understand the need for information retrieval or automation in the libraries. For them computers and terminals are still status gadgets which are not applicable to such low-status people as librarians. As there is a marked difference in this attitudes in fields such as medicine, sciences and technology, those are the most likely candidates to find users who will appreciate an improvement.

However, in the LDCs the human problems seem insignificant compared with the frustration caused by technical problems, such as sudden drops in the power supply when lifts start in the building, difficulties to obtain spare parts, when a failure occurs. Service and maintenance become as important as the hardware itself. It is encouraging that Unesco has taken up the problem of library auto -

mation and how the industrialized countries could provide assistance to the developing countries. That may bridge the technological gap, and soften the hostility against new technology, if it is adjusted to the information transfer needs of the LDCs.

In the Unesco Medium-Term Plan 1984-89, there are two programs of interest, namely: (1) Development of tools for the processing and transfer of information, and (2) Development and use of data bases through the application of modern technologies and normative tools. The approach is different in the two programs. In the first the intention is to use new information technologies and standardized methods in order to establish compatible specialized systems by taking into account all complementary elements, such as institutional, human and financial. In this respect IFLA could contribute to focus the attention on the human factors.

The second program is concerned with the various aspects of how to develop the capacity for storage, processing and circulation of specialized information by all the required facilities. It is said that there is a need to prepare conceptual studies which would be applicable in various contexts. Unesco hopes to give expert advice, and various pilot projects are also foreseen. Through an exchange of experiences it is hoped that policies could be formulated about how to set up national information systems and training facilities for personnel.

We can infer that in the first program the developing countries will be exposed to the new tools which will enter the traditional or newly established libraries. While these have to maintain some continuity within their established operations, the new tools will have impact upon the manual routines, and consequently on the staff. Unavoidable, the human factor has to be taken into account. In the second program, it seems not to be enough to set up training programs for personnel. Also, the users need training, because the goal should be to foster and guide new categories of users. However, who knows the background the teachers need, and how shall they get the needed knowledge?

For some years Unesco has taken an interest in the data processing technology with minicomputers, (Griffith 79). At present, the development is very fast. The minis and micros of today can be used as terminals. The only requirement is that they are provided with a V24-outlet and a program in the memory (ROM) that can handle the output so it conforms with the protocol that

rules the transfer through the telephone network (usually called TTY-compatible). From experience we know that the terminal programs provided by the suppliers are rudimentary and need to be supplemented by some programming in order to utilize the 'intelligence' of the micro, for instance, to transfer bibliographic records and files.

It could also be problems caused by the hardware, e.g. the plugs and the number of pins, the cables, not to speak about the modems. The user who is not computer knowledgeable would then hit upon seemingly unsurmountable difficulties when he tries to link up his mini or micro to a computer. For that reason it is necessary that those who have succeeded to link up micros to various computers should be encouraged to share their experiences with others, especially with those from the LDCs. When LDCs as 'change agents' are choosing people for international consultancy work about automation problems, it is most important that the consultant's home library can establish a long-range relationship with the host library, so that the latter can benefit from an exchange of views also after the consultancy is over. In fact, such relationship may be more important than the consultancy itself. The UNISIST program could in that respect activate an exchange pool by making such experiences available on a more global basis.

Conclusions

Computerization is multifaceted. The new micros and the telecommunications technology originate new communication patterns that will have long-range impact on our culture. Hitherto, we have dealt solely with automation of traditional library routines, but it would be wise to take a closer look upon the whole spectrum of human communications, for instance, the impact of (1) video, (2) viewdata, (3) personal computers, (4) telefax, (5) teleconferencing (6) satellite-TV and full document transfer, (7) cable TV, and (8) optronics (optical fibers).

The establishment of electronic processing systems in Swedish libraries, as elsewhere, has proved to be a powerful incentive to rationalize. It demands that the head librarian or project administrator acts with considerable skill not only with regard to the technical problems which have to be solved, but even more so with regard to their responsibility for their staff and all the human factors which have to be taken into account. The social organisation of a library is often in a state of long established equili-

brium which must be handled with considerable care during a conversion phase.

IFLA could advise Unesco how to proceed within the Medium-Term Plan 1984-89 in which strong emphasis is placed upon the application of modern tools in libraries. So, to conclude the author likes to play a didactic trick, namely to ask some queries which a librarian have to face, because these queries will be asked by staff members:

1. How is the content of the job going to change, and how will my life in the library be affected by this change? What happens if the library does not use the new technique?
2. Has any computerized system been implemented in the library? Can I explain the aim of the computerization in technical terms? Did I have any influence on the design of the new system?
3. Did the computerization lead to the disappearance of old routines to any extent? Have new ones been added? What happens if there is a technical breakdown and the terminal does not respond?
4. Did I get any specific information or training in connexion with the computerization? Was it done well ahead or first after it was introduced? What knowledge had my teachers?
5. Is the new system operated by special, newly hired staff or have the earlier employees been trained to handle the new equipment? Has work been transferred from one staff category to another?
6. Is there any old professional knowledge which is not used or not enough in esteem after the computerization?
7. Who makes the decision about the work plan and its implementation?
8. Do I feel myself more supervised and monitored in my work after the computerization?
9. Has the computerization given me more or less opportunities to survey and recognize the way my own work fits into the library as a whole?
10. Has the job environment improved or deteriorated, if I think of factors such as sedentary postures, strain on my eyes, concentration ability and stress?

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L'Introduction d'équipement électronique dans les bibliothèques
de taille moyen. Attitudes et comportements dans le cadre suédois.

par

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Résumé

B. Tell (Suède). L'introduction d'équipement électronique dans les bibliothèques de taille moyenne. Attitudes et comportements dans le cadre suédois.

L'étude présente plusieurs expériences d'introduction d'équipement électronique en bibliothèque, dans les 2 domaines de la recherche documentaire et de l'automatisation des bibliothèques. Elle montre d'abord que les plus gros problèmes ne viennent pas de l'ordinateur lui-même, mais sont plutôt de nature administrative. Elle expose ensuite les moyens de modifier les attitudes et comportements.

D'après la loi suédoise, tout projet de modification des méthodes de travail entraîné par l'introduction de nouvelles techniques doit être discuté et négocié avec les représentants syndicaux du personnel.

Les bibliothécaires qui ne sont pas préparés à l'introduction de nouvelles techniques doivent être mis en condition et il faut être prêt à passer un temps considérable en réunions, démonstrations de matériel et sessions de formation afin de modifier les attitudes routinières.

Le changement des comportements fut plus facile à réaliser dans le domaine de la recherche documentaire que dans celui du catalogage collectif. Les systèmes de recherche documentaire ont surtout affecté les utilisateurs, tandis que les nouvelles méthodes de catalogage automatisé ont dû être intégrées aux tâches courantes de la bibliothèque, les catalogueurs devant en même temps assurer une certaine continuité. Après plus de dix ans de travail d'adaptation, il semblerait que les changements technologiques provoqués par l'arrivée du mini-ordinateur soient plus faciles à maîtriser. Les mini-ordinateurs qui permettent le traitement local des tâches routinières sont maintenant bien acceptés, car leur mode d'utilisation peut être facilement assimilé.

En conclusion, l'introduction de systèmes électroniques de traitement dans les bibliothèques suédoises a contribué, comme partout, à une plus grande rationalisation, dans la limite où les facteurs humains ont été pris en considération. La structure sociale d'une bibliothèque s'établit lentement et chaque situation doit être étudiée avec le plus grand soin durant la période de transition.

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Impact of Automation on Funding Patterns
in Academic Libraries: A Case Study

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During the late 1950's and throughout the 1960's, institutions of higher education enjoyed a relative state of affluence in the United States. Established institutions could barely keep up with the demand and expansion for higher education. Growth was also fueled by the influx of federal and state support, making the expansion of higher education relatively easy. New, state-supported campuses sprang up nationwide, and it seemed at times that every legislator wanted to have a new state university in his or her home district. Expenditures for public-supported institutions of higher education became a major budget item in all states. Legislators began to analyze expenditure categories and improved accountability was demanded. As management controls tightened, academic institutions have become more sophisticated in their ability to analyze programs for effectiveness and to introduce cost-effective measures of operations. These measures, however, did little to slow down the tax-supported expenditures for higher education. The annual expenditures have risen from \$21.4 billion to \$33.7 billion during the decade of 1970-80.

During the late sixties, many states turned to budget formulas to determine the level of funding needed by programs supported. This was the case in the State of California, which provides support for The California State University system, consisting of nineteen quasi-autonomous campuses (see Appendix I).

The growing demand for accountability and management control has filtered down to academic library management also. Academic libraries have begun to develop and refine library formulas for such elements of the budget as staffing, collections, buildings and operational expenses.¹ These formulas have been looked at as a management tool that could introduce some equity in the budgeting process. The modern formula budgeting concepts have been in place in academic libraries since about 1965. It is not unusual that specific formulas developed to receive periodic adjustments to express the budgetary support needs in accordance with accepted standards of adequacy and expected levels of attainment.

In order to provide a proper setting of circumstances, it might be helpful to describe the flow of the budget request process for each of the University Libraries serving their respective campuses in the CSU system. This is a complex and bureaucratic process that has to be oversimplified for the purposes of this paper.

First, each Fall the campus Library Director submits a budget request through the campus President to the Trustees of the CSU system. These requests normally follow existing program needs and the realities of budget formulas that are in place. The second

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1. A description of the development of formula budgeting for libraries, see: Peter Spyers-Duran, "Prediction of Resource Needs . . ." Nova University, 1975. pp. 15-33
(Also published as ERIC Document #ED 112883)

step involves the Trustees of the CSU system, through the Chancellor's Office, negotiating with the legislature for an annual budget on behalf of the CSU campuses, including the libraries. The third step comes about seven months later when the legislature-proposed budget for the CSU system is authorized by the Governor. This results in an allocation based on formulas developed jointly by the CSU system and certain legislative offices, however subject to authorization by the legislative offices. Once the funds are allocated to the local campus, the President delegates managerial responsibilities to the Librarian.

Obviously, Librarians collectively have a great deal of interest in the CSU library funding formulas. There has been an annual lobbying effort to keep the formulas as favorable to the libraries as possible. On the other side, legislative budget analysts propose higher productivity in their attempt to keep the expenditures as low as possible.

CSU library formulas originally issued in the late 1960's have gone through a number of revisions. Most revisions represented slightly higher expectations for productivity. The most drastic revision of the formulas came during the 1983/84 budget preparation period, late in 1982. The California State Department of Finance proposed new funding standards based on considerable special funding provided for automating libraries with the beginning of fiscal year 1976.

The special funding for CSU library automation was requested in 1975 and approved by the legislature based upon assumed and future savings which were to be realized by the libraries after automation was introduced.²

At that time, CSU planners estimated that practical library automation could be achieved at expenditures of about \$19 million, resulting in potential savings of \$25 million during the years of 1976 through 1984.

The State of California agreed with the planners and provided the funding for library automation. However, the magnitude of "savings" envisioned appeared, for most campuses, unrealistic by early 1982. First, not all campus libraries had an equal interest in automation. This resulted in uneven progress towards implementation of library automation. Some campuses made significant progress in establishing computerized systems, while others have yet to begin to make major inroads. Second, the available automation funds were released in a phased manner and were highly controlled, making local campus decisions difficult to implement. Third, cost effectiveness achievable through automation was greatly overestimated. Smaller campuses with a range of 2,000 to 6,000 students did not feel that they could save significant funds through automating, let's say, circulation functions. The largest campuses, in the

2. California State University. Office of the Chancellor. "Return on Investment for Library Automation." Unpublished report, April 1975. 35 pages.

30,000-plus enrollment level, were able to reduce some of their personnel costs, but the savings realized were required to support the seemingly never-ending cost of automation. Such items as maintenance costs, the need for additional disk storage, terminals, and system enhancement became a normal trade-off to all personnel savings realized.

Nevertheless, the legislative offices had their own frustrations, being unable to get a voluntary return on investment in library automation from CSU as promised in 1976. As a result, an audit team sent to the 19 campus libraries has made recommendations to reduce the 1983/84 CSU systemwide library budget by \$4.3 million. This reduction would rise to \$4.7 million with the fiscal year 1984/85 and stay at this level of reduction in future years.

The reductions to be achieved were proposed by changing existing formulas which were presumed to be too "generous" during a post-library automation period.

These recommendations have sent a shock wave throughout the CSU libraries, as it was never believed that the state would collect on a 1976 planning document which simply speculated on "potential savings" due to automation. But the Department of Finance auditors thought otherwise and have submitted their recommendations, which can be summarized as follows:

1. Technical processing staff savings due to automation. Increased productivity through OCLC provides for one position for 1,240 volumes acquired in a fiscal year, up from 1,060 volumes in prior years.

Savings - 64.7 positions \$1.55 million

2. Circulation staff savings due to automation and increased productivity

Savings - 65.9 positions \$1.58 million

3. Public Service Formula
Change for higher productivity

Savings - 21.5 positions \$0.51 million

4. Change the mix of staffing

<u>Type of position</u>	<u>Prior to 1983</u>	<u>After July 1, 1983</u>
Professional librarians	31%	25%
Clerical/Technical	46%	42%
Student/Temporary Clerical	<u>23%</u>	<u>33%</u>
Total	100%	100%
Savings		\$1.0 million

Thus, the proposed total reductions of 152.1 positions and the reductions of \$4.64 million is further aggravated by reduction of the remainder of professional and clerical positions replaced by temporary and student employment. These measures will have far-reaching consequences that will be followed closely by all concerned.

At this writing, the final reductions are still under negotiation in the legislature. The best estimates are that the

proposed \$4.6 million reduction will be moderated to about a \$3.5 million level. To translate this fiscal plan to a single campus is difficult because of the varying sizes of the institutions. For example, CSU-Long Beach is a large campus. It represents about 10% of the entire system. The library would receive roughly 10% (or \$350,000) of the reduction. This is a large sum of money to cut for any organization. It will not be an easy task to manage the cut; however, CSU-Long Beach through its well-developed automation system will have an easier time than those campuses with lesser-developed automation programs (Appendix II).

The final outcome of the cuts and how it has been managed by academic libraries is a topic for another report. It is clear, however, from this experience that automation is an expensive program and that it will likely change the traditional mix of expenditures in libraries. As the funding sources have indicated in California, the added expenditures of library automation will most likely become a program expense to be absorbed by the institutions through a reduction of positions commensurate to the significance of such automation as introduced.

THE CALIFORNIA STATE UNIVERSITY

Introduction

The individual California State Colleges were brought together as a system by the Donahue Higher Education Act of 1960. In 1972, the system became the California State University and Colleges (CSUC), and since then 16 of the 19 campuses have received the title of "university". Effective January 1982, the name of the system changed to the California State University.

The oldest campus, San Jose State University, was founded in 1857 and became the first institution of public higher education in California. The newest campus, California State College, Bakersfield, began instruction in 1970.

Responsibility for the California State University is vested in the Board of Trustees, whose members are appointed by the Governor.

The trustees appoint the Chancellor, who is the chief executive officer of the system, and the presidents, who are the chief executive officers on the respective campuses.

The Trustees, the Chancellor, and the presidents develop systemwide policy, with actual implementation at the campus level taking place through broadly based consultative procedures. The Academic Senate of the California State University, made up of elected representatives of the faculty from each campus, recommends academic policy to the Board of Trustees through the Chancellor.

Academic excellence has been achieved by the California State University through a distinguished faculty, whose primary responsibility is superior teaching. While each campus in the system has its own unique geographic and curricular character, all campuses, as multipurpose institutions, offer undergraduate and graduate instruction for professional and occupational goals as well as broad liberal education programs. Each campus requires, for graduation, a basic program of "general education—breadth requirements" regardless of the type of bachelor's degree or major field selected by the student. A limited number of doctoral degrees are offered jointly with the University of California and with Claremont Graduate School.

The program objectives of the California State University are:

1. To provide instruction in the liberal arts and sciences, the professions, applied fields which require more than two years of college education, and teacher education—both for undergraduate students and graduate students through the master's degree
2. To provide public services to the people of the State of California
3. To provide services to students enrolled in the California State University
4. To provide institutional services to support the primary functions of instruction, research, public services, and student services in the California State University and to ensure that legal obligations related to executive and business affairs are met

The locations of the 19 campuses show the statewide coverage of this, one of the largest baccalaureate degree higher education systems in the nation.

LEGEND



Chronological Order and Name of Institution

Date Established

1. San Jose State University	1857
2. California State University, Chico	1887
3. San Diego State University	1897
4. San Francisco State University	1899
5. California Polytechnic State University, San Luis Obispo	1901
6. California State University, Fresno	1910
7. Humboldt State University	1913
8. California State Polytechnic University, Pomona	1938
9. California State University, Los Angeles	1947
10. California State University, Sacramento	1947
11. California State University, Long Beach	1949
12. California State University, Fullerton	1957
13. California State University, Hayward	1957
14. California State University, Northridge	1958
15. California State College, Stanislaus	1959
16. Sonoma State University	1960
17. California State University, Dominguez Hills	1960
18. California State College, San Bernardino	1960
19. California State College, Bakersfield	1965

CSU Vital Statistics:

19 campuses -	250,830 full-time students
Annual budget (approx.)	\$ 1.0 billion
Annual library budgets	\$60.0 million
Holdings	12 million vols.
	plus 35 million micro-
	forms and
	other items
Number of library employees -	1,664
(In full-time equivalency)	

Appendix II

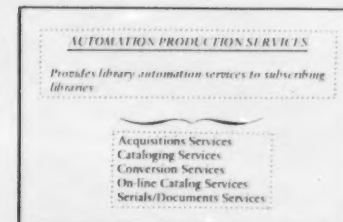
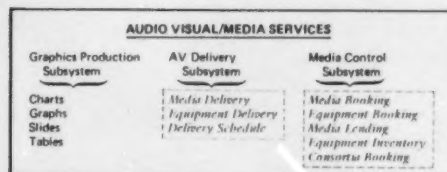
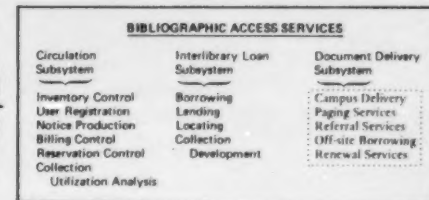
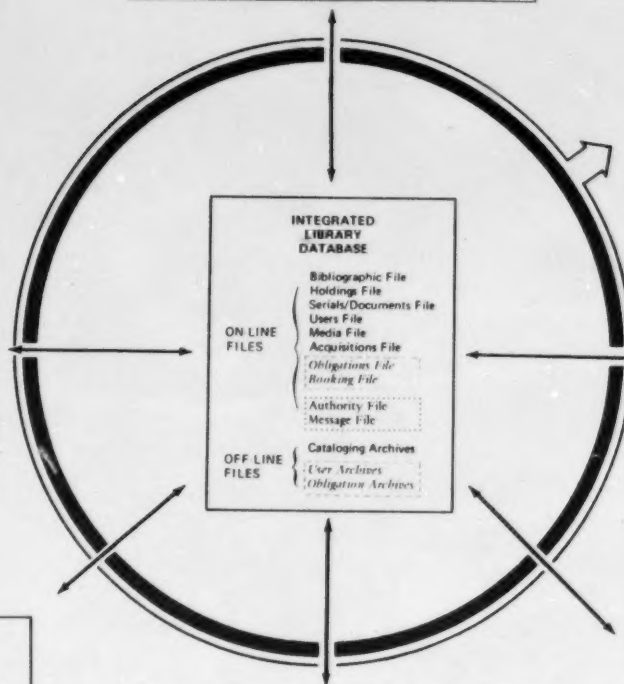
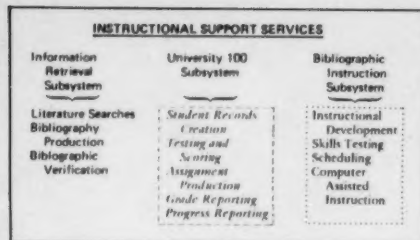
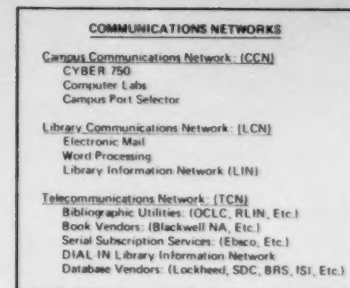
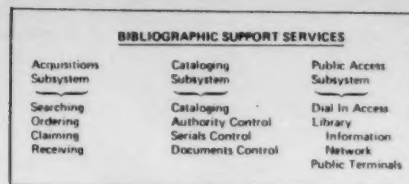


California State University, Long Beach
University Library and Learning Resources

LIBRARY AUTOMATION PROGRAM

LEGEND:

Programs in **Medium** are fully operational.
Programs in **ITALICS** are in development.
Programs in **GOBBY** are scheduled for development.



IFLA

1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: General Research Libraries

Section:

22-GENR-2-E

The place of university libraries in the field of
information supply

by

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Frankfurt am Main

Federal Republic of Germany

For internal use only:

to be brought to meeting no:

..... 77

Remarks: 51

to be presented orally



for distribution only



1. Tasks of university libraries

University libraries are institutions which should satisfy the need for information and literature that exists in the university; they should satisfy it as comprehensively as possible, with sufficient speed and reliability, and with all appropriate facilities.

University libraries seek to fulfil this definition of their tasks chiefly by using the academic and professional criteria needed to build up an adequate collection, by developing a suitable presentation of the publications they have acquired in terms of visibility and accessibility - taking account of differing user groups and subject specializations - and by providing the collection with a well-organised cataloguing system.

Since no library can be completely self-sufficient in the execution of its services, the university libraries realised in good time the advantages of cooperation, and used inter-library loan to make common use of their resources by means of central catalogues and the building-up of special collections, thus heightening the available potential. By establishing and expanding information services in university libraries it was possible to identify and obtain publications worldwide: a logical and effective instrument, from identification of the document to its delivery.

As establishments set up to provide a service, the university libraries are, however, subject to constant change. Whilst they may not develop in leaps and bounds, it is nevertheless possible to detect clear phases. This does not render previous phases obsolescent, but merely means that they take on a different value.

These changes are caused and dictated by both the current state of the information and publications market and the changing expectations of the user.

Libraries must take account of these changes if they are to fulfil their task efficiently, not just because as institutions they must react but even more so because they must act and act positively, since in their position both market trends and user needs are, or should be, known to them.

2. Computers and telecommunication

How products and technologies on the market change is decided by data processing telecommunication and the new storage media. Developments include, amongst others:

- Online services with the three divisions: literature databases, statistical databases and full text services, of which full text has still not been offered online by any European supplier.
- Bildschirmtext (Viewdata), a computer-backed information service that uses a television set as a terminal
- Videodiscs as mass-storage for full text services
- Document Delivery, the electronic transmission of documents as a direct response to a successful bibliographic search.

The communications networks used for data transmission are founded on the basic idea of the "distributed system", ie the individual participant is given access to all the resources of the network without having to worry about communications operation.

The various technical developments that are documented in pilot projects, experiments and studies can be easily supported by further examples.

However, the results of experiments often cannot be equated with the subsequent practical experience of every day use, prognoses often prove much too optimistic, and users react hesitantly and dubiously to new developments in the information sector; for these reasons I would like to confine my comments on computer-backed services for university library users to the already established online services.

Information bases

Interactive databases have of course established themselves on a large scale, particularly in the scientific and technical fields, and have been accessible to the public since the seventies. 80 million documents are accessible today through online services in West Germany alone.

Between 1976 and 1980 the number of databases grew by 75%. The number of available documents trebled and the number of searches quadrupled.¹⁾ Receipts from online services totalled \$632 million. With a predicted annual increase of 38%, the figure should reach \$3 billion in 1985.

This growing information market with its manifold ramifications has, in contrast to conventional printed services, a structured division of functions.

The chain of information is as follows.²⁾

- (1) Database manufacturer
- (2) Database owner
- (3) Database operator
- (4) Transmission network operator
- (5) Information supply centres
- (6) Literature provision establishments.

University libraries are represented in stages (5) and (6), occasionally in stage (1) as well. Thus the Stadt- und Universitätsbibliothek Frankfurt a.M. produces the database 'Bibliography of linguistics literature', which it offers in Euronet on the HOST computer of the GID Frankfurt.³⁾

4. University libraries as information supply centres

Information supply has always been a task of libraries. Thus it goes without saying that university libraries should install modern methods in this field to ensure a continuing response to the demands of the future.

In association with online services, the following criteria apply to libraries.^{4a)4b)}

- (1) public accessibility
- (2) long opening hours
- (3) a central position
- (4) a good economic position
- (5) choice of alternatives between automated and conventional services
- (6) the combination of information and document supply
- (7) professionally qualified academic staff
- (8) a standardized and clear scale of charges.

As a result of these considerations a number of university libraries in West Germany, for example, have decided upon the introduction of an information supply centre. In 1982, of the 74 publicly accessible centres, 30 were to be found in university libraries.

These supply centres focus on medicine, the biosciences, chemistry and technology.

5. Information needs and characteristics

Although science has felt obliged since its origins to collect, organize and supply the knowledge it produces and assesses, it is amazing, in view of the potential today of information services and systems in higher education, what deficiencies in knowledge remain.

According to the latest statistics, the proportion of use of the databases offered by Euronet/Diane by higher educational establishments is only 12%, as against 47% by industry.⁵⁾

This is a result that contrasts starkly with the facilities and expectations of the supplier. However, such a sweeping statement about the proportion of use is hardly appropriate in analyzing information needs and characteristics.

There are, first of all, a number of general reasons for this lack of use, which must be examined individually:⁶⁾

- Lack of awareness of the existence and/or the facilities offered by information suppliers.
- Priority given to the supply of conventional services and bibliographies by conservatively - minded libraries.
- Direct personal exchange of information by academics as the preferred method of communication.
- Psychological barriers of higher educational users (difficulty in admitting gaps in information or dependence on information services, incorrect evaluation).
- Insufficient budgetary requirements.
- Dissatisfaction with information suppliers in terms of arrangements for use and service performance (eg lack of knowledge of English).

New research in West Germany on information science in certain disciplines has shown for instance that two thirds of all academically active chemists and barely half of the psychologists know of an information supply centre, let alone use its services.

Information needs and use are dependent on professional activity, breadth of the field of activity, availability of information in that field and personal characteristics of the individual. The different influencing factors should not be separated from each other. The individual aspects may be further broken down. For example:

- working requirements
- tasks
- experience
- length of service
- level of education
- professional activity
- professional orientation ⁷⁾

Whilst in the USA and Great Britain research programmes were already being carried out in the sixties to analyse literature supply for academics and to eliminate gaps through improvement of services or the development of awareness this sort of user research programme began much later in other countries, and did not reach West Germany in any systematic form until the Federal Government's programme of aid for professional information. These investigations looked chiefly at use of information services.

This is true for example of the medicine/biosciences information organization DIMDI, whose problems and experiences were described and assessed in a pilot project lasting several years.

Amongst other results the following DIMDI search percentages were identified:⁸⁾

Subjects of searches on DIMDI

<u>Subject</u>	<u>%</u>
Clinical case report	6.5
Research projects	33.7
Journal articles	7.4
Textbook entries	3.6
Habilitation	1.4
Theses	34.9
Diploma work	6.5
Papers	6.3
Assessments	0.8
Other	3.4
No data provided	4.1
	108.6

(multiple searches possible).

User groups in the DIMDI - supply centres of university libraries

	<u>%</u>	<u>%</u>
<u>University</u>		89.2
Professors	8.1	
Academic staff/assistants	39.2	
Undergraduates/Post-graduates	41.0	
Others	0.9	
<u>Non-university</u>		9.8
Research Institutes	1.6	
Public authorities	0.6	
Hospitals	4.5	
General Practitioners	1.5	
Others	1.6	
		99.0

Reasons for searches by psychologists

In pursuance of daily professional activity	80%
Further education	57%
Dissertation	27%
Habilitation	14%
For teaching purposes outside the university	12%
For " " at the " "	47%

Research reports

Papers

Assessments

32%

54%

16%

Multiple searches were possible. The investigation was concerned with both conventional and automated types of information supply.⁶⁾

It is interesting, by the way, that over half of the users stated that they needed information because it was necessary to cite references in any piece of academic work.

Lancaster⁹⁾ compares the need for information with an iceberg; of the needs of the user, only those that have been identified - the tip of the iceberg - are visible.

If one wishes to analyse information needs and define the influencing factors, one must start by looking at known use and then include potential use.

Only by doing this will gaps in supply be identified, improvements suggested, further types of supply developed and an objective public service implemented.

6. Database facilities

There is no doubt at all that interactive databases will assume even greater importance as a basic element of information supply, particularly in the wake of fast-developing office and administration technologies.

Nor is there any doubt that supply has up to now orientated itself mainly towards basic research, with less emphasis on practical application or popular use.

Databases favour the subject fields of Natural Sciences, Technology and Medicine, and overwhelmingly offer bibliographic information. Social Sciences are gaining ground, so too are some areas of the Humanities. Well known database suppliers include:

for the USA

- Lockheed DIALOG
- SOC ORBIT
- ISI

for West Germany

- DIMDI
- INKA
- IURIS

for Great Britain

- BLAISE

for France

- Telesystemes
- Questel

for Switzerland

- DATASTAR

for Italy

- IRS/ESA.

All the HOST - computers can now be searched via so-called packet switching networks, in Europe via EURONET or national networks like DATEX or TRANSPAC, in the USA via Tymnet and Telenet.

There are standardized protocols for the different types of terminal (teletext terminal, graphics terminal, printer etc) so that the setting-up of an information supply centre no longer presents any overriding technical demands.

When university libraries decide on the operation of an information supply centre there are clear possibilities open to them, giving them a choice from which they must balance convenience (page mode - line mode), speed (acoustic coupling - Modem-X25) and cost.

In West German university libraries teletext terminals in page mode with large and small print format are in predominant use, with a transmission speed of 4800 b/sec and a printing speed of 120 characters per second; smaller departmental subject libraries on the other hand have printing terminals with an integrated acoustic coupler mostly with a transmission speed of 300 or 1200 b/sec.

Because of the versatile nature of hardware today the choice is not dependent on the type of telecommunication, but can be decided from the point of view of the needs of user and staff.

7. The relationship between conventional and automated services

Besides technical requirements, organisational efficiency and the composition of personnel are crucial to the level of service offered by information suppliers in response to the needs of its university users.

There are usually no restrictions on university libraries in terms of either subject fields or target groups; they are not only suppliers of externally produced information, but naturally offer large stores of knowledge in the form of books and journals themselves, and thus already hold a highly valued position as a centre of information.

This supports (on grounds of cost as well) the establishment of a central information supply point in university libraries. It is vital to combine these information supply points organisationally with the conventional services in one information department.

The direct connection between the two systems, and knowledge of the connection, will hone the ability of the information supplier to give guidance, and strengthen the choice available to the user. In future it will become increasingly important not merely to define the request of the user and thereby decide on the suitable information tool, but also to differentiate between individual possibilities because of fringe requirements such as speed, comprehensiveness, cost, purpose of the request etc.

In this connection the question is raised whether the high prices for printed editions of subject bibliographies should still be paid at all, since the same money will buy hundreds of online searches. The situation has been aggravated by constantly rising prices and the sinking budget of libraries. Even though the interactive database is or will soon be assuming its full importance to a large number of academics, in my opinion it does not at present replace printed services. Bibliographies offer cost-free, unlimited and repeated access. This access is a vital element in teaching, and a pre-requisite for unrestricted teaching and learning.

A central university library should provide this free access. Multiple copies of bibliographies in the university can be dispensed with, so too bibliographies that basically just rearrange information, but not primary bibliographies.

For a long time now the importance of libraries has not been judged only be the size of their collections, but also on their ability to obtain the information required.

On request, the information supply centres will offer SDI services according to need, formulated according to the individual field of interest of the user, and consisting of a printed list of recent accessions sent out at regular intervals. This continuous awareness can save the academic an immense amount of time, and in particular provide long-term research projects with an ongoing source of information awareness.

8. Information suppliers

The decisive connection between the end user and the information system is the information supplier.

Taking into account the particular demands on an information supply centre in a university library, its activities are dictated by the following requirements:

- complex and wide ranging subject search requests
- coverage of a number of subject areas
- the ability to analyse academic problems
- acceptance of the information supplier by the academic.

A Delphie-Study published in 1981 by Reichertz and Schwarz assessing the qualities needed by information suppliers makes the following assertions: (10)

Professional criteria:

- grasp of the terminology of a subject field
- grasp of the pattern of search requests and of the structural elements
- technical skill with hardware
- advice and attention for the end-user
- knowledge of current classification systems
- knowledge of the objectives, the quality, the capacity (comprehensiveness, interactions etc) of the database
- up to date awareness in each subject field
- willingness to undergo constant and successful improvement

Professional knowledge

- Ability to turn a formulation of requirements into a search strategy specific to the database.
- Ability to communicate with academics.
- Recognition, analysis and solution of problems.
- Awareness of which subject field is best covered by which database.

- Wide-ranging professional knowledge and knowledge of terminology.
- Ability to gain a knowledge of unknown subject fields.
- Coordination of information needs and supply.
- Knowledge of foreign languages.

Task specification:

- Service at terminals.
- answering written and telephone enquiries
- held with defining problems
- direction of personnel
- checking of search results
- further professional education
- systematic introduction to document and information supply for users
- conventional searching of all bibliographic tools
- conversion of information supply into document delivery

These requirements make it obvious that primarily academically trained information supplies are considered necessary.

The abilities these people provide should not only be a basic requirement for information supply duties, but should also ensure advice and education for the user, qualities which are assuring an increasing value in information supply centres in university libraries.

Since an information supply centre is no one-man operation, but is divided into spheres of responsibility, there are opportunities for assistant staff to undertake administrative tasks and the more simple computer searches. They should hold a further education diploma.

Experience shows that subject specialists working on the professional staff of libraries are particularly suited to performing online searches in information bases. They do not only provide the specialist knowledge that enables them to solve the problems of users, but as librarians they are also in the position of being able to integrate this special form of information supply into the overall framework of facilities in the library and thus offer an enhanced spectrum of service. This task will be either the main task or a periphery task according to the particular needs of individual subject disciplines.

A central argument for a professional information supplier, who combines specialist knowledge with knowledge of information and document supply, is also contained in the demand for constant further education. Particularly in the field of information systems, facilities, procedures and technologies are changing so fast that the attraction and capabilities of an information supply centre are almost totally dependent on the state of awareness of new databases, improvements in retrieval software and of new technical developments in telecommunications and end-terminals.

9. Central and departmental information supply centres

Although there are good grounds for the establishment of an information supply centre in a university library, this is not to say that university libraries should have a monopoly. They would do themselves and their users a poor service. A central library should always have an information supply centre, but over and above this the desirability of establishing decentralised information points in departmental and institutional libraries should be evaluated, according to need and geographical situation. An important criterion for the acceptance of information facilities is their accessibility. The more favourable the relationship of cost to use, the more priority they will be given.

9.1 Medical Information Services

Experiences in West Germany have proved for instance in the case of medical information supply through DIMDI that the presence of services in a medical departmental library is thoroughly advantageous.

The proximity to the user and to the research projects, the speed of service, the opportunity to formulate search requests with the user and the availability of specialised literature improve efficiency decisively. The use made of medical information supply centres is in general such that it is also economically the best solution.

For this reason, wherever there are highly active research institutes, a decentralized centre can be planned, providing satisfactory personnel to staff it can be found.

The emphasis on high use is not only an economic consideration, but also a qualitative one. Information suppliers who carry out only occasional searches are uncertain of search strategy, of the terminology and in their assessment of the relevant databases. They run the risk of giving incomplete or unspecific results. So long as such complex and formalized retrieval languages are used, information suppliers must not only have specific and up to date qualifications, but must also be 'in practice'; the potential weight of demand made on an information supplier in a decentralized library must therefore also be predicted.

9.2 Chemical Information Services

A similarly speedy development of the use of automated services to that in medicine or the biosciences is to be expected in chemistry as well. Somewhere in the world, a publication in the field of chemistry appears every minute. In 1981 Chemical Abstracts abstracted more than 500,000 pieces of original work. Literature abstracted since 1967 is fully accessible via interactive searches.

The internationally standardized form of the chemical structural formula is of particular importance in computer searching. It can be entered as a search term in a graphics terminal; a substructural formula can be altered at the pre-search stage where the request is being formulated. In this way chemists have a visualised formulation which is in daily use and which is independent of any language. Sub-structure searches are independent dialogues occurring before a bibliographic search. It is to be expected that interactive searching will increase in the wake of this relatively new development.

As a result of the experiences of the Institute for Organic Chemistry of the University of Frankfurt a.M gained in a research project in conjunction with the university librarian, the following recommendations were made: 11)

- that a work station with a graphics terminal, a printer, and graphics entry should be available
- That the work station should be installed in agreement with the university library and run by chemists who are qualified information scientists
- that after basic financial support has been ensured, search costs should be largely borne by the user
- that in any given subject field a lecturer experienced in information supply should be available to take responsibility for educating users and assessing use.

In this case too, the experienced information supplier forms the link between information system and end user.

A detailed estimate of user-acceptance of information bases, broken down into individual subject fields, is not possible at present; investigations of services and groups of users are fragmentary, and the attitudes of information base users are largely dependent on the choice available.

10. Advice and coordination

As far as the tasks and objectives of university libraries in further development are concerned, experience shows hitherto that they must take on the role of an advice and coordination centre as well as operating their own information supply centre. This should not only act as a clearing-house for the latest professional and technical information but should also be actively involved in the establishment and construction of decentralized departmental centres, in the organisation of further development and training, and in monitoring compliance with norms and standards.

A university library should be an active participant in the education of information study groups in the various subject fields, in which academics, information suppliers, database suppliers and librarians can discuss needs and services.

A university library should work with groups of database suppliers and contribute details of the practical experiences of information supply centres.

A university library should be active in user education and in information-orientated academic teaching.

The development of decentralised information supply points should be a pragmatic step, made in conjunction with the university library. Where use by individual subject fields is not too high, they should continue to satisfy their needs centrally in the university library; where a measured increase of use is likely, the establishment of a separate information supply point should be examined.

In the course of such considerations, however, it should not be forgotten that online searches do not replace traditional information provision, but supplement it. It is thus always an advantage to have other channels of information.

11. Information workplace

The future development of information supply will have to bear two things in mind: the fast advance of microcomputers and simplified retrieval languages.

The microcomputer offers the academic simple and economical access to local computer facilities.¹²⁾ The following characteristics have made it suitable for this purpose:

- reduction of cost and size
- greater and better storage capacity
- greater word length
- use of more important programming languages
- standard network protocols

Microcomputers can be installed as an independent system, linked with a HOST computer, or made part of a microcomputer network.

These applications open up the opportunity to:

- provide an in-house collection of data
- have access to external databases
- further process extracts from external databases
- fulfil administrative tasks
- exchange research results
- supply publications

In the years to come this development will be increasingly put into practice. This does not necessarily mean the direct involvement of the end user in searching large databases. There are indeed database producers, BIOSIS for example, that develop training programmes and programmed instructions, but it is to be expected in general that the majority of users will continue, or will have to continue, to make demands on the information supplier.¹³⁾

Communications structure, the structure of the database the various retrieval languages, and knowledge of the facilities available in each field demand a trained information supplier conversant with all the latest advances. This does not mean that there are not academics who have an excellent knowledge of their own field.

It is quite possible to imagine a situation wherein end users make the more simple searches independently whilst the more complex investigations are left to the information specialists.

The many-faceted applications of an information centre - from searching external databases to the construction of an in-house information system and the issue of academic publications - mean that it is probable that in relevant research projects an information specialist will be a team member who performs all these tasks for the academics.¹⁴⁾

The development of more simple retrieval languages in the form of easily comprehensible question-answer interactions between user and information system can also be expected in the years to come. Their installation however will be more immediately relevant to popular databases and full text databases. Over and above this, application is also to be expected in the viewdata field. In the medium term it is not expected to extend to information supply centres in university libraries or to their users.

12. In-house literature supply

As a consequence of better information about literature through efficient advisory services, a corresponding demand grows in all subject fields for the further development of literature supply.

This demand is made on the central services of the university library, to run concurrently with their functions of information supplier and advisory and coordinating service.

In-house improvements with regard to fast literature supply can be attained if the university library makes current literature freely accessible, stocks journals and provides adequate copying facilities, offers an online catalogue for its stock showing loan status if possible, or at least provides a COM-catalogue of all its book and journal holdings which is freely available in all the university departments.

13. Document supply in the information network

Alongside in-house improvements, improvements in interlending should also be sought.¹⁵⁾

- Establishment and development of a central interlending library (eg as in Great Britain) or of a number of efficient subject libraries (as in W. Germany).
- concentration on acquisition of journals
- improvement of in-house identification and delivery systems for serials
- improvement of in-house identification and delivery systems for monographs

In West Germany the Special Collections programme is funded by the Deutsche Forschungsgemeinschaft to the tune of 6 million DM, and has the participation of 17 state and university libraries. The Special Libraries hold altogether 80,000 currently received serials and acquire over 100,000 monographs each year.

As may be expected, in contrast to the high demand in natural science and technical subjects for current literature, humanities subjects have a high demand for older literature. According to a 1982 study ¹⁶⁾ 68.5% of all literature requests are satisfied for the periods pre-1801-1945 (38.5%) and 1946-1970 (30%) in West Germany, which is also an important pointer to the value of databases in the Humanities field.

The task of efficient in-house records systems in the information network is to establish by means of an online search where and under what conditions the required literature is available.

This problem has been solved in West Germany as far as serials are concerned by the interactive serials database at the DBI and the Staatsbibliothek Berlin (West), introduced in 1983, with around 260,000 serial titles and more than 600,000 location records. A microfiche edition is also available.

As regards monographs, the establishment and extension of regional library centres is dealing with the problem.

In line with the further development of literature records via interactive databases, it is intended to introduce ordering facilities which will allow the user to order original literature in libraries directly from the terminal.

It is anticipated that serial ordering will be given a special facility whereby parking files are created at the serials database in Berlin (West) from which libraries with the facility for commercial online ordering may retrieve daily the orders that have been stored for them.

Such delivery systems already offer commercial databases like SDC or Lockheed. The direct ordering of literature online will be no substitute for the supply of original literature in universities at least, if only for reasons of cost, but is intended rather as a supplementary service to cater for specific demands.

The national Post and Telecommunications authorities have developed further facilities beyond the packet switching networks for databases, which can be used more heavily in interlending in the future. These comprise in West Germany the Teletext and Telefax services which allow facsimile transmission. It is anticipated that the Telefax system will be able to transmit a side of A4 in 20 seconds by 1984/5, if technological development is correctly projected.

The technical methods and developments shown here improve or alter the records and delivery systems, but the standard means of information still remains the book or serial.

Conclusion

It is obvious what a multi-faceted involvement universities have in information development, and what an important role they will play in the future information and literature needs of the user. Libraries are the only systematically organized holders of the means for mass communication.

The computerization of information and document supply is all in all not an alien concept for libraries. It is a natural progression to make use of the facilities available at any given time if the library is to fulfil the conditions for building an 'informed society'. This also requires of librarians that they learn to make competent use of the facilities.

The present situation demands that professionally active librarians get sufficient opportunity for further education in this field, and that trainee librarians acquire the relevant qualifications during their training.

In this way automation provides a challenge rather than an insurmountable obstacle.

The challenge lies in putting new technologies to use in such a way that the library's abilities to shape its own system are improved, and in such a way that the user's expectations are met by efficient deployment and improvement of library services. Only in this way can university libraries do their job in a fast changing information world, and thus hold on to their central position as information and document suppliers.

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Research LIBRAIRES.

UNIVERSITY LIBRARIES AND THE HIGHER STUDIES
SUGGESTIONS FOR IMPROVING SERVICES

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An abstract :

This paper begins with a short review of the three stages of the University instruction : Pre-Islamic era, Islamic era and the European era. It elaborates on the tradition of the University teaching learning process during the Islamic Civilisation, as well as the importance of the university library to all its readers whether graduates or undergraduates and refuses the suggestion concerning the establishment of a special library to serve higher studies. Services and objectives of the university library are discussed with some details.

Such library functions are not existent on the libyan university campuses. Therefore, the writer summed up the library functions and services which are supposed to be offered by these libraries, then a number of recommendations and suggestions were mentioned.



It can be generalised that functions, rules and philosophies of University in Arab Muslim Society, and especially in the Jamahiriya recently have passed through three developements of trends which can be summerized in the following three points.

1. Pre-Islamic era: In those days the University and its library were exclusively for rulers and Kings, the rich men of religious class; as for the rest of classes, Universities were mysteries. Therefore, knowledge

was a monopoly to the so-called excellent class of people. This was the characteristics of the Babylonian, Alexandrian, Tibian, and Chinese Universities.

2. Islamic era: A new trend developed under the Islamic culture, like Beitul Hikma in Baghdad, Al zeituna un Tunisia, Al Qu'ameen University in Fas, Morocoo, Al-Azhar and Al-Mustensiriya Universities, etc. In this second era, both the philosophy and functions of the university changed. They became public after had been a special concession for the rich and sons of the ruling class of people. The university and its library were wide open to whoever desired knowledge. Students were encouraged for learning through free lodging, food and clothing, in addition to free stationery and other requirements. Students are not the only beneficiaries from these centers of learning scholars including researcher and professors highly benefitted from universities and their libraries during muslim era, they used to use their rich resources to perform their studies and research projects. In comparison with modern universities, those muslim institutions were more useful and functional than the modern ones in the developed countries. It is true that we live in an era characterized by science and technology, but the more we get advanced, the more problems we discover. Currently, we are all familiar with the limitations of our societies medically, technologically and

socially.

Another functional quality of those muslim institutions is that they were part of the society dealing with its problems whether social or scientific, they helped to create free and liberal scholars, and they became a fortress against corruption, bad rulers and even outside hostilities threatening the country. This was the role of the muslim universities in Asia and Africa during modern liberation movements and their struggle against foreign intruders led to independence and freedom.

3. Role of Europe: then came early modern European universities which inherited some of the traditions and sciences of the preceding muslim universities through translations and scholarships. Today, those early European Universities established very close ties with their societies and communities, whether in the capitalist or socialist states.

The above three trends in the history of the university were mentioned just to give a summary of the characteristics of modern universities, and their libraries, then their relations to the Islamic culture.

The outcome of all that is the current development of highly specialized subjects, applied sciences dealing with all types of daily problems for the purpose of better and easier life for the benefit of all nations. Such acti-

vities have bearing on social advancement, and the more these modern universities and their libraries develop, the better impact they will have and the more functional and useful research will be the result.

Today, some people in the Jamahiriya^{1/}, believe that the higher studies need a special library to meet the needs of the Faculty members and graduate students. Personally speaking, I believe that there is no reason for establishing such a special library separate from the main university library. The only thing, I can think of is introducing some additional library services to meet the research requirements at a higher level.

If every university establishes such special library, that will be wasteful and financially unachievable, especially after the current inflation as well as the literary explosion exemplified by millions of documents published every year.

Therefore, it is more useful to use the available money to develop the existing resources and services because the more we can do and buy the more is left to be done and bought. In this respect, how many libraries in the world can buy just five percent of the annual literary output which is estimated by fifteen million documents in the mid eighties^{2/}. This is better way of building and planning more effective library resources serving all

levels of education especially if it is supported by sharing of resources or library cooperation and networking through such programs library resources and supplemented by those of other libraries in the system. This healthy situation is necessary for all modern research libraries in the world. Especially, after the current explosion in knowledge no library can be an island by itself and can provide satisfactory information services, to its readers, because comprehensive research requires sharing planned. Therefore, planned acquisition and cooperation are mandatory for today's research libraries.

Such programmes are necessary mainly for the support of higher studies, which require very advanced level of research, and these levels can be divided into three:

A. Pre-graduation level: this covers the term papers at the under graduate level. Such research is normally general and the student does not need to delve into highly specialized subjects.

B. Specialized research: this is the type of research undertaken by beginning subject specialists, who normally do this type of research as a prelude or training for real research.

C. Real research: this is applied research done by all kinds of scholars like, graduate students and faculty members. This is how knowledge grows social and

technical problems get solved and advanced lectures prepared^{/3/}.

According to these three points, research level at the higher studies in the Jamahiriya can be defined, its library needs and services can be planned in the best possible way including the need for manpower and physical facilities.

/3/ Our University libraries have been serving their clientele since the middle of the century, but what kind of service have they been offering? Have they been performing their duties like bringing the right book to its reader at the right time? A simple answer to the questions is "No". But after thinking a little, we can positively say that they have been doing their best to provide the readers with their information needs. Some of them have been providing the necessary books and other types of documents in a systematic way and at the least possible cost. They have been open to the readers for about ten hours a day, and some of them have been organizing their collections according to the international standards accepted in the East and West. So, they have been struggling hard to serve their readers inspite of all the limitations like inadequate buildings, poor furniture and resources and inexperienced manpower. These are some of the reasons for the short comings of our university libraries and their poor

information services.

This situation is not strange in the developing countries. According to Gelfand^{/4/} "the existing university libraries and information service in general are, with a few notable exceptions, highly inadequate in the developing countries".

As it is known among the daily functions of our university libraries are providing documents to their readers and organizing loan services. In fact, modern librarianship is more than that, it covers readers advisory, reference services, and teaching the reader how to use the library in order to be able to find the information he needs. Therefore, in modern libraries, readers should be taught how to use books and libraries. This covers all types of reference books, audiovisual media and their projectors, library catalogs and regulations, so that readers may be able to carry out their own research projects, and the specific answers to their questions. Therefore, instruction is the main function of modern research libraries in order to be able to create educated readers and true researchers. Unfortunately, this important function is non-existent in the Libyan University Libraries. These libraries in Libya have no definite policy or clear objectives at the moment. In fact, they function according to some general notions founded traditions which contradict the simplest rules of modern education. It is

clear that a successful teaching process should be performed according to definite objectives, clear to those rules put them in practice trying to achieve the goals. University libraries should have their own policies and objectives which should be in full accord with those of the mother institution.

In fact, they are non-existent. This is the case in almost all developing countries where libraries face numerous obstacles. Among the major obstacles to university library development are^{5/}:

"A - Lack of clearly defined university and library objectives, of cooperation and understanding from university authorities and faculties, of trained library personnel and adequate clerical staff, of library resources in the university and in the country at large.

B - Severe import and currency restrictions.

C - Inadequate financial support.

D - Inadequate physical facilities.

E - Failure to appoint a competent University librarian, to give him authority commensurate with his important responsibilities, and to recognize the educational and professional qualifications of librarians.

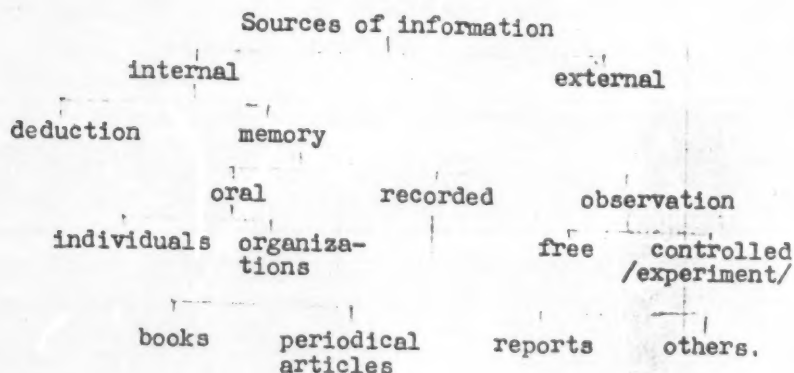
F - Unduly complex purchasing and other administrative regulations.

G - The inhibiting enforcement of strict personal

accountability for book losses".

The above-mentioned obstacles are severe restrictions to library development in Libya. Lack of clearly defined objectives is on the top of the list. These objectives should be the concern of all participants: students, faculty members, librarians and administrators. They should be flexible and dynamic rather than set once to be kept for ever. Since we live in a changing world, they should be revised constantly in order to keep pace with the changing needs of the readers, and reflect the march of time.

/4/ The library is a participant with the mother institution to achieve certain educational goals. Building educational resources to support teaching and research is the responsibility of the academic library. These resources cover all types of documents, traditional and non-traditional. The following diagram illustrates these resources /6/.



The university library, whether central or a branch plays a very important role in relation to the external sources of information since it is incharge of their acquisition, processing, organizing and servicing. These documents whether printed or recorded should be mobilized to meet the information needs of the readers with the necessary professional help to enable them to get the information they look and perform their research projects.

/5/ In order to encourage reading and research the university library usually introduces a number of creative services at varying levels, from the undergraduate up to the post doctoral one. It creates researchers, develops good reading habits and promotes library use, and the result will be contribution to the development of knowledge, and enhancing the functions of the mother institution.

Such intellectual functions can be achieved through close collaboration between the library staff and the faculty members. Such cooperation cannot be achieved without full understanding between the two parties, concerning teaching methods and educational goals so that the library may be able to provide the necessary references and tools. Then what starts in lecture halls will be perfected and realized in the library as a result of a genuine research through thousands of all types of documents.

Fruitful Library use requires certain techniques

which help readers in information retrieval and saves their time. Such techniques encourage library use, and contribute toward quality education. In this respect, we should confess that students use the library mainly to write their papers and study for their course work. This point should be fully utilized by the faculty members who should orient their lectures and teaching methods towards the use of library resources rather than following the prescribed textbook method. They should direct their students to use library resources in writing term papers or collecting information from a whole list of bibliography rather than using one or two sources. If faculty members stress their own lectures, or a particular text book, then their students will read their lectures notes only. This traditional method does not reflect any cooperation or understanding between faculty members and librarians. That is why this method has changed into most of the modern universities if not in all of them.

The cooperation between each faculty member and the librarian should be planned in advance so that each one may prepare his lists and techniques to direct and help students in their research. Then each one should abide by what is agreed upon. Under such circumstances, the library is really used functionally and contributes towards achieving the overall objectives of the university. This

requires a well developed library collections, qualified faculty members familiar with library resources and facilities, and experienced librarians who know how to sell their information and services.

University Library Services to students of higher studies.

/6/ The following services are supposed to be offered by Libyan University libraries to students of higher studies and faculty members.

First: Teaching how to use the library is a process of continuing education or life long education and research. In this era which is characterized by explosion of knowledge, readers need guidance constantly and librarians have to provide them regularly with new bibliographies and other services that readers may be able to keep pace with developments in knowledge.

Among library services offered to readers is providing them with the required documents and explaining how to use them, so that readers may get full benefit without wasting their times in looking for the right answers unsuccessfully. This teaching process may cover one of these programs or all of them.

A. Reference services cover a host of activities like locating the right resources and teaching researchers how to use the documents like bibliographies and statistics.

In this way librarians help researchers to help themselves.

— This library activity is a life long education as it encourages researchers and other readers to use the library. Such training helps readers in using these huge libraries of today to get the right answers for their problems with the least efforts. Students of higher studies are among this category of readers as they get the most benefit out of this library service^{/7/}.

Such a training can be given at a variety of levels and according to a time table put in agreement with the regular semesters. Such a training is emphasized heavily at the beginning of each semester so that it may enhance the teaching learning process throughout the term. This systematic library training is normally considered as one of the academic courses by some universities with one or two credits, or at least the student is given a certificate of attendance. In some other universities, such a training is not offered regularly but on demand by groups or individuals. Such a training should cover all sources of information, books and non-book materials, with special emphasis on bibliographies and preparing subject lists.

B. Another library activity or training could be like a seminar on how to use reference books. Since advanced studies require reference services, then students of higher studies should attend such seminars to know how to use

books and libraries with all the necessary projectors and the new media fruitfully.

In order to be able to benefit from information sources adequately readers should know how to use libraries and their resources, and the lack of this information may lead to loss of knowledge and waste of time. Generally speaking, Libyan university students off all levels are unfamiliar with library use. They do not realize the value of the library in relation to teaching learning process and research. All university students need information for a variety of purposes but they do not know how to get to it. Therefore, in all types of documents organized in their library, and since they do not know how to use the library adequately and unfamiliar with its classification system. Their learning and research projects will be incomplete. This is exactly what mean by loss of knowledge, and wasting efforts.

Libraries are among the regular teaching and training centers like laboratories and lecture halls. Students have to attend their lab. lectures in which they are taught how to use the lab and do their experiments successfully. This knowledge is compulsory for any students whose research need the use of laboratory apparatus for experimentation. Similarly, library use is necessary to complete the theoretical aspects of that same research. Therefore, all univer-

sity students and especially those of higher studies have to attend the necessary library training programs successfully or they may not be allowed to work on their research projects which require the knowledge of library use effectively. In this respect, I can conclude that teaching library use should be one of the regular courses in the higher studies programs and especially in Libya, and the teaching should be performed by experience and qualified librarians.

Second: A good university library staff should always be on alert to give the right answers and without delay to questions coming from readers or researchers. Especially when the questions are connected with the subjects taught at any of the university departments. In addition to this, the main references connected with this information should be mentioned as well, so that students or readers may refer to them for further studies. In answering such questions, the reference librarian should use his library resources as well as those of other libraries in the region, and even to consult some authorities and experts in the community, for some valuable information his researchers may need. This is what experienced librarians should do in the process of performing their library services. Such authorities and special collections in the community should be utilized more effectively by directing researchers to these sources

of information for interviews and more detailed studies.

As it was mentioned earlier in this paper, no library can be an island by itself. Therefore, library cooperation is a requirement for effective library resources, after the current explosion of knowledge. Sharing of the existing resources is not all to it, but planning their acquisition budgets for getting more expensive titles is very important part of library cooperation. Therefore, all department libraries should cooperate to make a university library system. Still these libraries cannot provide satisfactory services and they need more library resources to provide better research opportunities to their readers. This is the reason for the development of a variety of information networks around the world. In this situation research libraries get into special agreements to mobilize their resources and services for the benefit of all readers in the region. Such cooperative programs improve library resources and bring down the cost per capita. Then readers will have access to millions of documents which no one library can provide by itself no matter how rich it is. If Libyan research libraries get into such cooperative programs, they will provide their readers with much improved library services, other than building richer resources for less. However, before they can join into such a program, Libyan libraries have to centralize their technical ser-

vices including planned acquisition in addition to publishing some necessary research tools like union catalogs and union lists of serials, and encourage inter-library loan policy. With such tools and procedures, Libyan research libraries can provide their readers with much better library services and resources. Then libyan researchers can borrow any document located in any Libyan library no matter where in the huge country.

Third: International library loans and the services to the higher studies: the prupose of the international library loan is to meet the needs of advanced researchers and graduate students to information which is not available in the country. This can be done through joining some international information networks. I recommend that Libyan libraries should join and abide by the regulations of such a program for the mutual benefit of all readers, especially knowledge is an international property and it belongs to whoever needs it. In this respect, IFLA^{19/} put a set of rules to regulate the international book loan for the benefit of researchers from all nations. Currently, most of the countries have already established national libraries or centers which have agreements with similar centers abroad mainly facilitate document borrowing for their national researchers. This library activity has been operational for long, and IFLA has been keeping statistics of this

activity, compiling directories of such centers and their photo-copying services, and dealing with any emerging problems like excise and customs.

In this respect, the writer suggests that the central library at Al-Fateh University should act as the Libyan International Lending center to regulate this library service through the Department of the union catalog and Bibliographic services, which so far is none existant. Therefore, the central library should act immediately to establish such a department, which has to organize the national union catalog with the help of other libraries in the country. Then the Department should act as the Libyan Center for international lending to help researchers and students of higher studies through borrowing and/or getting photo-copies of the necessary documents wherever they might be, at home or abroad. In addition to this, it will serve as a clearing house for all Libyan literary output including government publications to help foreign as well as national readers at the time of need.

Fourth: Rules and regulations should be quite clear concerning lending policy and other library services. Accordingly, all readers should be treated equally, and no one should be refused for any reason. Students of higher studies as well as faculty members and undergraduates should be treated without any discrimination, but rather

they should be encouraged to make use of library resources and services. On certain occasions, students of higher studies are given some concessions, but these should not interfere with the right of other library patrons. As a general rule, no discrimination should exist in modern libraries since these intellectual centers serve scholars and thinkers, and help to create free minds.

All libraries put certain rules to organize their services. Such rules should be easy to follow and simple enough to facilitate access to library resources and services rather than complicating the situation and making a problem out of our intellectual profession. Library resources should be rich enough to meet the information needs of the readers. For this purpose, the library should acquire the necessary titles through the regular acquisition programs, then it should join one of the cooperative library systems or information networks.

Library resources should be rich enough to represent the current literary output by acquiring enough journals as well as the necessary titles of the new media and their projectors. These resources can be supplemented through a variety of programs like interlibrary loans. Certain basic reference books should be represented by two or more copies depending upon the need of the library readers. Such references are used heavily for the basic data necessary

in all types of research. Circulation of library materials is one of the basic services offered to all readers. Such items are lent for certain periods of time depending upon the available resources, and the demands of the library public. Therefore, the periods of lending vary from library to library taking in consideration readers interests.

Fifth: The next important service that supplements circulation of library materials is photo-copying. Therefore, the library should acquire and install enough photo-copying machines on the various floors of the library building. Since this service has already released the pressure from circulation department. This copying should be regulated by the copy right law to be more specific, copying should take place according to item No.1. of the law issued 1968, which states that "Any reader is allowed to make one photo copy of any copy righted documents as long as he is going to use it in his teaching or learning^{/10/}."

Sixth: Indexing, abstracting, and translation services: these services provide readers with quick and indispensable references. The nature of the current library research mandates these items since no research can be complete without these keys of information retrieval. After the current literary explosion no reader can read every item in his field of interest. Therefore, he has to read selectively rather than comprehensively. Selective

reading is possible by the help of indexing and abstracting services. Therefore, all the current as well as the retrospective volumes of all the related indexes and abstracts should be made available in the reference department of any research library. As for translation services, it is also necessary since knowledge is published in hundreds of languages around the world.

Seventh: Research libraries have to issue their own directories annually, since they facilitate library use. In addition to such publications, research libraries have to organize book exhibits representing either new acquisitions, or commemorating some important authors, or intellectual occasions. Such activities with a host of other publications the library can communicate with its readers as indicated in the following points:

1. The library has to inform readers with its regulations and policies.
2. The library has to publish regularly bibliographies with its new acquisitions, as a method of informing the public of its resources.
3. The library has to publish bibliographies of the basic and important reference materials which are needed regularly by library readers and researchers.
4. The library has to prepare subject bibliographies regularly as a help to some researchers.

5. Book exhibits are very important means of communication with the library public. Therefore, such exhibits should be organized regularly on all proper occasions. This library publicity has very important bearing on informing the public with the library sources of information.

Eighth: After the above brief discussion of the university library activities and services, the writer may finish with the following conclusions and recommendations to the existing university libraries in Libya.

A. Al-Fateh University should start the newly proposed building for the central library without any delay. This building was proposed according to the recommendations of the Unesco expert Mr. Parker who issued a report on the development of the library and documentation resources and services in the Jamahiriya. Recommendation No. 12 in his report was concerning the University libraries. In that same item, he highly recommended the coordination of efforts and services of the two main universities in the country. Qariunis and Al-Fateh university libraries should plan together building their acquisitions in order to improve the information resources in the country.

B. According to all the indications of the weak library resources and services in Libya, the writer suggests an immediate creation of a committee to study comprehensively and critically the existing library resources and services.

Then the committee has to issue its recommendations concerning how to develop library operations, services and resources.

C. It is quite necessary to organize and publish the long awaited union catalog including research and university library resources for the benefit of all researchers in the country, and especially the students of the higher studies.

D. The enrichment of the existing poor library resources in the country is a must for any adequate research, especially acquiring more related journal titles, and the new media, which are not well developed in our university library resources. In this way our library resources will be able to keep pace with the development of knowledge and literary explosion.

E. The necessity of organizing and developing the indexing and abstracting services to facilitate information retrieval and to inform our readers with the state of the art in their fields of interest.

F. The necessity of adopting new techniques and methods in acquiring library materials, and the writer highly recommends the centralization of this library operation at least at the university level if not for the whole country. Then library resources can be improved by avoiding duplication of efforts and documents, and bringing down the cost of these materials.

G. The necessity of unifying the regulations of the two universities, especially their library objectives and services, then certain emphasis can be put in these policies concerning the information services for the students of higher studies and other researchers.

H. The necessity of organizing a guide on the "university libraries and their services to researchers". This guide should be a document on library resources and services and made available to researchers, then it should be taught to university students, and especially in the departments of higher studies, as it is done in some well developed universities around the world.

I. The necessity of adopting some programs to train library personnel like in service training or sending them to other institutions to attend workshops, conferences, and regular university lectures. In this way library services and operations can be improved. Such training should cover the use and study of library machinery including the new electronic ones, in addition to new theories and techniques in library and information sciences.

J. Inter library loan should be highly regulated and encouraged among all libyan research libraries to supplement information resources and services in the country. As for the international library lending, it is indispensable in an era mainly characterized by proliferation of knowledge and literary explosion.

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